physically balanced, and that what is called a well-balanced mind is really a properly balanced brain. By this reading we explain many phenomena of living action otherwise inexplicable.

Among the reviews, a kindly word of welcome is given the NATURALIST. — MM. Bert and Blondeau have been experimenting on the contractions of the Sensitive Plant: —

M. Blondeau experimented on plants with the induced galvanic current of a Ruhmkorff's coil. He submitted three plants to the influence of the electric current. The first was operated on for five minutes; the plant when left to itself seemed prostrated, but after a while (a quarter of an hour), the leaves opened, and it seemed to recover itself. The second was acted on for ten minutes. This specimen was prostrate for an hour, after which it slowly recovered. The third specimen was galvanized for twenty-five minutes, but it never recovered, and in twenty-four hours it had the appearance of a plant struck by lightning. A fourth plant was etherized, and then exposed to the current. Strange to say the latter had not any effect, the leaves remained straight and open; thus proving, says M. Blondeau, that the mode of contraction of the leaves of the sensitive plant is in some way allied to the muscular contraction of animals.

NATURAL HISTORY MISCELLANY.

BOTANY.

MONSTROUS FLOWERS OF HABENARIA FIMBRIATA. — Mr. W. W. Denslow, of New York, found last summer a spike of this orchid with all the flowers abnormal, spurless, and fringeless. A few of the flowers, examined by me, exhibit the following peculiarities. All of them are dimerous, even to the ovary. The most reduced has the perianth simply of two sepals, anterior and posterior, and the anther and stigma nearly normal: no vestige of petals. The others have a perianth of four pieces, resembling the normal sepals, no labellum, and generally two anthers, alternating with the inner pieces of the perianth. One of these anthers is occasionally somewhat petaloid, but with one or both the cells well formed, although more separated on the petaloid connective; the pollen and the gland nearly normal. In one flower the two opposed anthers are exactly similar, and nearly normal, but with the slender tip of the cells more curved, so that the glands which are contiguous in pairs, are upturned. The stigma is central and symmetrical. In more than one flower there is an attempt at a second pair of anthers, within and alternate with the others; one of these is occasionally well formed, and the other rudimentary. — A. GRAY.

THE ELDER (SAMBUCUS CANADENSIS) AS A NATIVE PLANT. — The responses to our inquiry are generally in favor of the affirmative. The most explicit testimony received, however, is the following, from our excellent correspondent, Mr. M. S. Bebb. He writes. "I never saw *Sambucus Canadensis* out of a fence corner; but my father who was born in Southern Ohio in 1802, and who remembers distinctly the first White and Red Clover, Blue Grass, and Black Mustard he ever saw, — he lived in the back woods nine miles from any settlement, when Cincinnati and Marietta

were mere hamlets, — declares that the Elder was abundant on the islands of the Dry Fork of the White-water River, in the earliest settlement of the country; that he remembers very distinctly making 'spiles' of its stems when tapping sugar-trees, and that it was a great pest in low bottom-lands, and had to be eradicated with much labor when clearings were made." — A. GRAY.

GERMAN IVY, SO-CALLED, FLOWERING UNDER PECULIAR CIRCUMSTANCES. — Mr. L. H. Brown, of Dayton, Ohio, informs us that branches of this delicate climber, cut in October, were carried into the house and hung around picture-frames upon the walls of a room in which, until winter set in, there was no fire. In about three weeks they began to put forth blossoms, which have never been seen upon the plants growing in soil, and they have kept on blooming for several weeks, the vine growing freely. The old leaves soon withered, but those of new shoots took their place. — A. GRAY.

LESPEDEZA STRIATA Hook. and Arn. The notice in the November number has called forth several communications from the South, where this plant is attracting much attention. Both Mr. Ravenel and Professor Porter call Dr. Gray's notice to the fact, that they sent specimens to him twenty years ago. The Rev. Dr. Curtis writes that the new comer, if we may call it so, has reached Charlotte, North Carolina, where it is a perfect God-send, taking complete possession of the worn-out fields, and is cropped by cattle with such avidity that a good specimen is hardly to be obtained. Professor Porter writes as follows: —

"I have read with great interest the note of Dr. Gray concerning the introduction of this foreigner into the Southern States, and, as the date when, and the place where it was first observed, may be of importance, wish to put on record the fact, that, twenty-one years ago, in August, 1846, I collected the specimens, now in my herbarium, in Monticello, Jasper County, Central Georgia. It grew in a wild nook by the side of a road, at some distance from the village and any human habitation. I never dreamed of China and Japan, and have hitherto regarded it as a native waiting for a name." — T. C. PORTER.

A RELIC OF THE GLACIAL EPOCH. — On the south bank of the River Delaware, in Bucks County, Pennsylvania, fifteen miles below Easton, and forty north of Philadelphia, there is a range of perpendicular, forest-crowned cliffs, extending east and west for a mile and a half, and varying in height from three to four hundred feet. The rock is New-red sandstone, identical with that of the valley of the Connecticut, as shown not only by its lithological characters, but also by the fossil footprints which it contains. On the faces of the cliffs are several extensive water-drips, and at two or three points they are penetrated by narrow and shallow ravines, down which rivulets come leaping. At these places the ice accumulates in immense masses during the winter, and lies undissolved until late in the spring. This was observed whilst passing along the railroad

on the opposite side of the river, and the inference drawn that the mean annual temperature of the rock would be so reduced by the slow melting of the ice, and the large amount of evaporation in summer, as to afford favorable conditions for the growth of northern plants. In hope of finding something of the kind, the spot was visited on the eighteenth of May, 1867, in company with Professors Green and Hitchcock, of Lafayette College, and our search was rewarded by the discovery of *Sedum Rhodiola* D. C., — an inhabitant of high latitudes in Europe and America, its nearest known station in our country being Quoddy Head, on the eastern border of Maine. The existence of such a plant in such a locality can well be explained only by the supposition, that, when the arctic flora retreated northward at the close of the glacial epoch, it was left behind. Far up on the ledges of the rock, chiefly under the drip of the water, it grows in dense tufts, whose pale, glaucous hue attracts the eye of the botanist, in situations so difficult of access, and in such abundance, that it bids fair to maintain its hold as successfully for ages to come, as it has for ages past.

It may not be amiss to state also that in New Jersey, ten miles to the north of these cliffs, *Polemonium cœruleum* L. has been recently detected in a large, shaded, sphagnous swamp, where it is evidently indigenous; and that, a few miles farther on, in the same range, occur other northern species, among which are *Bidens Beckii* Torr., *Lobelia Kalmii* L., *Betula pumila* L., and *Carex flava* L. — T. C. PORTER.

POLYPORUS FRONDOSUS. — A specimen of this enormous fungus was recently exhibited at one of the Horticultural Society Exhibitions at Boston. It was found growing on the decayed stump of an oak tree in Boxford, Mass., by Mr. James Barratt. It belongs to a group of the *Polypori*, which is characterized by an eccentric growth. From a central base arise large imbricate clusters of rounded, lobular extensions which grow from the pseudo-branches of the main stipe. These lobes are light-brown above, and the texture of the upper portion is stringy and scurfy. Underneath they are studded with the numberless pores which give rise to the plant's generic name. The species of the genus are very numerous, all of them markedly characterized by the multiplicity of minute pores which clothe the under surface of the expanded top, called the *pileus*. Many of them have the upright stem, called the *stipe*, exactly in the centre, so that the plant resembles an umbrella, the sticks of which are replaced by a serried mass of vertical tubes, on the inner surface of which grows the reproductive dust called *spores*. The *P. frondosus* produces its *pilei* in side growths, which look like thick, fleshy leaves, and hence the specific name.

Many of these eccentric species grow to an enormous size. The specimen referred to was four feet in circumference. A specimen of *P. giganteus*, collected in Forest Hill Cemetery some years ago, was over five feet in circumference, and weighed ten pounds. — C. J. SPRAGUE.

THE TORREY FESTIVAL.—The Botanical Club of New York has been for some time engaged on a catalogue of the plants growing within thirty miles of New York city. A catalogue, embracing the same territory, was made in 1817, by Dr. John Torrey, and the club celebrated the fiftieth anniversary of its completion by a supper at the Astor House, on the twentieth of December. Invitations were extended to those who had prominently identified themselves with American botany, and the club wishes us to say that they used all possible diligence to invite all interested, and if there were any omitted, it was from inadvertence. The day was unfortunately one of the most inclement of the year, and the impediments to travel prevented many from coming from abroad. Among the guests were Professor Gray and Dr. Pickering, of Cambridge; Professors Eaton and Brewer, of New Haven; Professors Porter and Green, of Easton, Pa.; Thomas P. James, of Philadelphia; S. T. Olney, of Providence; C. F. Austin, Closter, N. J.; S. B. Parsons, of Flushing; and I. Buchanan, of New York. All present were furnished with a button-hole sprig of Torreya, and after a short time spent in social intercourse, the company were seated at table, Professor Thurber presiding. After the substantials had been disposed of, Professor Thurber gave the following

ADDRESS.

For some occult reason I have been placed in a position where I am to speak for the Botanical Club of New York. It is indeed a pleasure to meet such a number of botanists, and my first duty is to express the thanks of the club to those who have come from abroad at this inclement season to aid us in our festivities. The incentive to this genial gathering is so well understood, that any elaborate remarks are fortunately unnecessary. On December 22d, 1817, there was presented to the Lyceum of Natural History, "A Catalogue of Plants growing spontaneously within thirty miles of the city of New York." The Botanical Club, which comprises, so far as we are aware, all the working botanists of New York and its suburbs, has thought proper to mark the fiftieth anniversary of an event so interesting to local botanists, and the commencement of a career so important to botanical science, not only in America, but in the world.

Here I must correct an error of the printed invitations, which are made to say that this is the fiftieth anniversary of the publication of the catalogue. The title-page bears the date of 1819, and an explanatory advertisement says, "Although the following pages were reported as early as December 22d, 1817, unavoidable obstacles have delayed its publication until the present time." It is not the publication of the catalogue that we celebrate, but its completion and presentation to the body which requested it to be prepared. As the 22d day falls this year on the sabbath, the nearest convenient day was chosen. There may be those who think it would have been more appropriate to regard the anniversary of publication, rather than that of its presentation. Such are assured that the club will consider the subject in season for the centennial anniversary. This little volume is now so rare, that I have brought it here, in part be-

cause it may be of interest to some to see it, but mainly because its time-stained pages would prove more eloquent than any words of the speaker. It is the author of this little catalogue in whose honor we are assembled. I am aware that on occasions like the present it is customary for the speaker to assume that the hearers are quite in doubt as to the person spoken of, and to relieve their minds only at the close of his speech, by announcing the name of the one who has been eulogized. Unskilled in the arts of the table orator, and quite sure of being unable to keep this company in a state of suspense, I go directly to the point and say that the author of the catalogue is Doctor JOHN TORREY.

As we look through the pages of the volume, we are astonished at its completeness, and wonder that a mere youth could have accomplished the great amount of preparatory labor necessary to the task.

In imagination we can look back over the intervening half century, and see the young enthusiast herborizing in localities that are to be found only in this catalogue. The "swamp behind the Botanic Garden," and the "bog-meadows near Greenwich" have long ago been built over, and Love-lane is now a paved street. The station here recorded for *Draba Caroliniana* has ceased to be available to the botanist of the present day, as that plant no longer grows, according to the catalogue, "in sandy fields about Canal street." Not only have localities disappeared, but those whose names are associated with them, and who are recorded as having contributed material to the catalogue, have passed away also. Mitchell, Nuttall, Rafinesque, Eddy, LeConte, Cooper, and others, while they live in the memory of a few of those present, are to the most of us known only by their works. From this catalogue as an initial point, let us briefly survey the intervening half century with reference to the botanical works of its author.

In 1820, there appeared in Silliman's Journal, vol. 4, *A Notice of Plants collected by Capt. N. Douglass around the Great Lakes at the Head-waters of the Mississippi.*

In 1823, the Annals of the New York Lyceum of Natural History contained the first instalment of the many precious contributions made by the author to our knowledge of the plants of the far West. Its title is, *Descriptions of some new or rare Plants from the Rocky Mountains, collected by Dr. Edwin James.*

In 1824 was published, *A Flora of the Northern and Middle United States, or a Systematic Arrangement and Description of all the Plants heretofore discovered in the United States north of Virginia.* But one volume of this work was published, and as a portion of the edition was destroyed by fire, it is now only rarely to be met with. It contains over five hundred pages, and includes the first twelve classes of the Linnæan system.

In the same year, 1824, we find in the Annals of the Lyceum, *Descriptions of new Grasses from the Rocky Mountains;* and in the same volume Dr. Torrey appears as editor and joint author with Schweinitz, of *A Monograph of the North American Species of Carex.*

The year 1826 was marked by the publication of the *Compendium of the Flora of the Northern and Middle States*, a work so full, concise, and compact, that it was indeed a compendium. Probably some of those present can remember when this volume came to their relief, and the delight with which they turned to its brief diagnoses, after puzzling over the vague and unsatisfactory descriptions of other works.

On the 11th of December, 1826, our author read before the Lyceum, *Some Account of a Collection of Plants made during a Journey to and from the Rocky Mountains, in the Summer of* 1820, *by Edwin P. James, M. D., Assistant Surgeon U. S. Army.* This paper was not published until 1828. It is a memoir of some eighty pages, and enumerates 481 plants, many of which were new species. This was, up to the date of its publication, the author's most important contribution to science, and is even now frequently referred to by the student of our Western plants. It besides has an especial interest, as it was the first American work of any importance in which the arrangement was according to the Natural System. The only exception to this is a list by Abbé Correa, of those genera appended to Muhlenburgh's Catalogue, arranged according to the Natural Orders of Jussieu. *A Catalogue of North American Genera of Plants, arranged according to the Orders of Lindley's Introduction to Botany*, was published in 1831, both in a separate form, and as an appendix to an American edition of Lindley's work.

In 1836, the Annals of the Lyceum are rich with the *Monograph of the Cyperaceæ*, and the volume for 1837 contained a memoir on *New Genera and Species of Plants.*

The year 1838 saw the commencement of the *Flora of North America, by John Torrey and Asa Gray*, which was published in numbers and at intervals until the year 1843. The rich treasures brought in by our Western explorers interrupted the continuance of this work, and its authors directed their energies to plants from hitherto untrodden fields. That elaborate work, in two large volumes, *The Flora of the State of New York, by John Torrey*, was published in 1843, a year which began a remarkable era in American botany. In that year commenced that magnificent series of contributions to our Western Flora by Torrey, Gray, and others, which followed one another in rapid succession. Nicollet's plants, published in his report in 1843, was the first of this almost continuous series of reports, of which I will mention only those wholly or in part by Dr. Torrey. That daring young lieutenant of the Topographical Engineers, now General Fremont, made two expeditions to the Rocky Mountains, the botanical results of which appeared in 1845. The report of the plants collected by Emory followed in 1848.

In the Smithsonian Contributions we find three memoirs by our author accepted in 1850, though they were not published until a year or two later. These were *A Memoir on Batis*, another on *Darlingtonia*, and *Plantæ Fremontianæ*, which last contains descriptions of some new plants collected by General Fremont in his memorable expedition to California.

The year 1852 gave us the plants collected by *Stansbury in the Region of Salt Lake.* The plants of *Marcy's Red River Expedition* appeared in 1853, and those from *Sitgreaves' Zuni and Colorado Journey in* 1854.

The rich collections made by the botanists attached to the several Pacific Railroad Surveys, were published in 1855 and 1856. The plants of some of these expeditions were elaborated by Newberry, Durand, and others. Those collected by Beckwith and Gunnison, and by Pope on the Llano Estacado, appeared under the joint authorship of Torrey and Gray. The botanical portions of the reports of Parke, Williamson, and Whipple are by Dr. Torrey. The report of Whipple's Expedition is the most extensive of all these Pacific Railroad contributions to botany, as the journey crossed a country not heretofore penetrated by any botanist, and which afforded a rich harvest not only in new species, but new genera. To the other reports, those which do not bear his name as author, of the botanical portion of them he contributed freely, often working up entire families.

The most voluminous, as well as in some respects the most important of these Botanical Reports of the Government expeditions is that of the Mexican Boundary, published in 1859, and with this I close this chronological account, remarking that some contributions to science have been omitted altogether.

This little catalogue of 1817 began the list, and it closes with the elegant quarto of the Mexican Boundary. Indeed there is no student of American Botany who has not almost daily occasion to refer to the works of TORREY.

Is it not fitting, then, that we should celebrate the fiftieth anniversary of the opening of a career that has brought so many benefits to us, and has given such lustre to American science? I have spoken of what would seem to be the work of a lifetime; but when we recollect that all this was done aside from other duties, as recreation from labor as it were, we can only wonder at the zeal and industry it indicates. But those who estimate the services of Dr. Torrey to botany from his published works alone, omit a large and important share. Those present do not need to be reminded of the personal aid he has given them in their studies. What lover of plants, however young or unskilled, ever failed to receive his patient attention and kind word of encouragement? Not only those who have had the advantage of personal acquaintance with him, have been the recipients of this aid, but those who have never met him have felt it through his correspondence. These are works that will never be published, but they are deeply imprinted on the hearts of botanists in all parts of the country.

It may be thought that this hurried review of the botanical labors of our guest is incomplete, without some reference to his character as a man.

It is always a delicate task to speak fittingly of another in his presence; and I could hardly trust myself to give utterance to what I feel is due him. Happily I am saved from the embarrassment that the attempt

would bring, by speaking what is in the thoughts of all here present. Every one who has been brought in frequent communication with him knows that he has forgotten the philosopher in the friend, and that he has been made not only a better botanist, but a better man.

Many years ago, Arnott published in Taylor's Annals of Natural History a description of a new genus, established on one of the beautiful Conifers of Florida, and gave it the name of *Torreya*. The Florida species is *Torreya taxifolia*. Since then there have been added to the genus *Torreya nucifera* from the island of Japan, *Torreya Californica* from the Pacific coast, and possibly another from Northern China, *T. grandis*. While we are glad that a so fine and widely spread genus should bear the name of our friend, we regret that Arnott had not been more happy in his choice of a term to designate our native species. Although a native of Florida, it is hardy on this island, and even as far north as Fishkill, on the Hudson. It holds its bright foliage through the cold and snows of winter, and its presence here suggests thoughts of more genial climes and seasons. Had Arnott possessed the power of prophecy, he surely would have written *Torreya sempervirens*; for does not he whose name it bears disregard the frosts of time? Does not his presence always bring genial summer, and show us that years bring no winter to the heart which has not lost the freshness of youth, but in which love—love to man and to God—reigns supreme? Long after the flowers shall have bloomed above us all, future botanists will carry on the work he has so nobly helped. Those yet unborn will wander by the Southern rivers, visit the mountains of far-off Japan, or climb our own grand Sierra Nevada in search of the Torreya, and his name will be remembered as long as there shall be botany and botanists. But these can only talk of him whom it is our privilege to know, to honor, and to love, and whose presence we now greet with the already too long-delayed sentiment: Long life, health, happiness, and every blessing to our honored guest, Doctor JOHN TORREY.

Doctor Torrey, after feelingly expressing his thanks, and the surprise which this demonstration was to him, gave an interesting account of his first introduction to the study of botany, and the great difficulties that attended the student in those days. Botanical books, which, or their equivalents, are now to be had by every one, were then only to be found in the library of the New York Hospital. Doctor Torrey gave an account of some of the earlier teachers in the science,—Hosack, Eddy, Mitchell, and others, and a sketch of the history of the Elgin Botanic Garden.

The next regular sentiment was, "The Flora of North America; its past history and future prospects." This was responded to by Professor Gray, who facetiously remarked that he hardly knew what Flora was intended; but taking one view of it, if he were to judge from the number of young devotees that he saw, he should consider Flora's prospects very flattering. He spoke of those who were collaborators in the Flora of North

America, and especially of Sartwell and Dewey, both of whom had recently died, and to whose memory he paid a feeling tribute.

Dr. Pickering, who was with the U. S. Exploring Expedition, replied to a sentiment referring to government aid to science. Professor Eaton, to one on botany in our colleges. The Flora of California was the subject of remarks by Professor Brewer, which were interesting as well as humorous. Mr. Wm. Leggett, of the club, gave an account of the new local flora now in preparation. Mr. James Hogg, a member of the club, spoke of the relations of botany to floriculture. Professor Porter, Mr. S. T. Olney, and Professor Trail Green each made brief speeches.

One of the interesting events of the evening was the production by Mr. T. P. James of a manuscript volume found in the Library of the Academy of Natural Sciences of Philadelphia. Although the writer's name is not given in the volume, yet from the places visited and the plants mentioned, there is no doubt that it is the diary kept by Pursh while he was in this country. It is very minute in its account, and is written in such imperfect English, that readings from it created much merriment. It came into the possession of the Academy with the plants belonging to the late Dr. B. S. Barton, who, it is well known, was a friend and patron of Pursh. Professor Gray remarked upon the singular way in which things long separated would sometimes come together. He had, from the sale of Lambert's library in London, a MS. map of the United States, with Pursh's route traced upon it, and as that evidently belonged with the diary, he should take pleasure in presenting it to the Academy.

Letters were received from many botanists who were unable to be present; all of them expressed great regret at their necessary absence, and each one conveyed the warmest good wishes to Doctor Torrey.

The letters were read by Dr. F. J. Bumstead, and among them were those from Professor J. T. Rothrock, Dr. J. W. Robbins, L. Lesquereaux, George Vasey, George W. Clinton, Dr. J. Carson, Professor E. Tuckerman, W. D. Brackenridge, Professor J. Lewis Russell, Dr. Z. Pitcher, Professor J. P. Kirtland, and that of Dr. Jacob Bigelow, now the oldest American botanist, we give entire.

BOSTON, Dec. 12, 1867.

GENTLEMEN, — Your kind and flattering invitation, requesting my presence at a supper to be given in New York in honor of my much respected and long-esteemed friend, Dr. John Torrey, is received with much gratitude. If it were now May or June instead of bleak December, I should be irresistibly tempted to join in your appropriate festivity. But as there is at present no travelling conservatory between Boston and New York which can be relied on effectually to exclude the frost, I am obliged reluctantly to give up the proffered pleasure. My acquaintance with your honored guest, Dr. Torrey, dates back for half a century. At that distance of time, I had devoted myself considerably to Botanical studies, and had published a little work on the plants of Boston. Dr. Torrey, who was then meditating a national work on North American plants, with more kindness than discretion, wrote me a letter, generously offering me the use of his collections, notes, and personal assistance, if I would undertake the enterprise. Fortunately for Botanical Science, I declined the responsibility, and the work has since been wholly carried out by himself and his distinguished colleague, Professor Asa Gray. For myself, I have been obliged to confine my herborizations mostly to the pavements of the streets, though at times I have broken loose in pursuit of my first love, and have gathered plants on the Rhine, the Rhone, the Tiber, and the Danube, not overlooking the St. Lawrence and the Mis-

souri. In June of last summer I found myself culling simples at Fort Harker, away among the buffaloes and prairie dogs on the Smoky-hill fork of the Kansas River.

Although if a scientific section of my trunk were now to be made, it might exhibit about four-score annual circles, yet I am happy to state that the ligneous fibres appear thus far to do their duty, and the sap vessels to transmit their contents. And I confidently trust that on no occasion will my botanical friends find me to be hollow-hearted.

I am, gentlemen, with the greatest respect, your obedient servant,

JACOB BIGELOW.

ZOÖLOGY.

THE BREEDING HABITS OF BIRDS.—I notice in the November number of the NATURALIST an article from Mr. Fowler, in which are given some interesting facts in relation to the breeding habits of several of our birds, but which are, as Mr. Fowler says, so utterly at variance with the accounts given of these bird's habits in my recent book, that I unwillingly trespass on your limits for an explanation, and reiteration of some of my remarks. In the work referred to, I describe the Kingfisher's nests as being placed in holes excavated in sand-banks, to the depth of three, four, sometimes six or eight feet.

The holes found by Mr. Fowler were less than three feet in length, and none of them contained any nest materials whatever. Here Mr. Fowler's experience is entirely different from my own, for of numbers of these holes that I have dug out, many of them were beyond four feet in length, one certainly more than six feet, and I have heard of one that was carried to the depth of nearly eight feet. All of these holes had their loose nests composed of straws, sticks, and a few feathers, and I should be surprised to meet with the eggs laid on the cold damp earth, such as would be at the bottom of such deep excavations. I find, on referring to the various authors, that nearly all had similar experiences with mine.

Audubon says, "The hole is dug to the depth of four, five, or sometimes six feet; at the farther end, on a few sticks and feathers, the eggs are deposited."

Wilson says, "The hole is dug, sometimes to the extent of four or five feet. The nest is constructed of loose grass and a few feathers."

Nuttall says, "The bank is horizontally perforated, to the depth of five or six feet. Here, on a few twigs, grass, and feathers, the eggs are deposited."

Dr. Thompson, in "Birds of Vermont," says, "The perforations sometimes extend five or six feet into the bank. The nest consists of twigs, grass, and feathers."

In describing the breeding place of the Red or Mottled Owl, in my work, I use the following language: "The Mottled Owl selects for a nesting-place a hollow tree, often in the orchard. The nest is made at the bottom of the hollow, and is constructed of grass, leaves, moss, and sometimes a few feathers. It is not elaborately made, being nothing more than a heap of soft materials."